KATIE M. SAUND
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RESEARCH EXPERIENCE & EDUCATION

PhD candidate in Microbiology & Immunology University of Michigan, Ann Arbor, MI 2015 – Nov 2020 expected

- **Advisor:** Evan Snitkin, PhD
- **Thesis project:** Statistical approaches to identify variants in whole genome sequencing (WGS) data associated with pathogenic phenotypes and patient outcomes during *Clostridium difficile* infection.
- **Topics:** computational biology, bacterial genomics & metagenomics, infectious disease, tool development
- **Awards:** ASM Travel Award (2019), UM Rackham Conference Travel Grant (2019) & Professional Development Award (2019), NIH Predoctoral Genetics Training Grant (2016 – 2018), UM Maas Fellowship (2015).
- **Software:**
  - prewas. R package. Data preprocessing for bacterial GWAS.
  - hogwash. R package. Three bacterial GWAS methods.
- **Papers:**
  - Saund*, Lapp*, Thiede*, Pirani, Snitkin. Microbial Genomics. 2020. *Equal contribution.
  - Saund, Rao, Young, Snitkin. Open Forum Infectious Diseases. 2020.
  - Preprint: Saund & Snitkin. Hogwash: Three bacterial GWAS methods.
  - Mau, Eckley, Bergin, Saund, Villano, Vendrov, Snitkin, Young, Yung. mSphere. 2019.
  - Preprint: Bassis, Bullock, Sack, Saund, Pirani, Snitkin, Alaniz, Quint, Young, Bell Vaginal microbiota
- **External talks:** ASM Microbe (2019) & NIAID Systems Biology and Antibacterial Resistance Program (2018).

Intern in Genetics and Pharmacogenomics at Merck (Remote) Summer 2020

- **Advisor:** Marc Sze, PhD
- **Topics:** single-cell RNA sequencing, early discovery oncology

Research rotation with Benjamin Segal, MD at University of Michigan 2015

- **Project:** Screened drug effect on experimental autoimmune encephalomyelitis (a mouse model of multiple sclerosis).
- **Topics:** autoimmunity, T-regs, T-cells

Research Assistant & Scientist 1 (Promoted 2014) Seattle Children's Research Institute, Seattle, WA 2012 – 2015

- **Advisor:** Courtney Crane, PhD (University of Washington & Ben Towne Center for Childhood Cancer Research)
- **Topics:** immunotherapy, solid tumor microenvironment, immunoncology, metabolism, NK cells & macrophages
- **Paper:** Haberthur, Brennan, … Cancer Biology & Therapy. 2016.

California Institute of Technology (Caltech) BS Biology, Pasadena, CA 2008 – 2012

- **Leadership:** Co-President for Class of 2012.
- **Awards:** Everhart Service (2012), Teruggi Memorial (2011), Studenski Memorial (2010), & Shepard (2009).
- **Research:** SantaLucia Lab: 16s rRNA alignment algorithm improvement (Wayne State University; 2009) & Manary Lab: food & clinical interventions for pediatric malnutrition (Washington University; 2010 & 2011).

COMPUTATIONAL AND LABORATORY SKILLS

Computational: R, bash, package development, high performance cluster (HPC) computing, version control (git), data visualization, markdown, batch scheduling (PBS, Slurm, Grid Engine), unit testing, linux/mac/PC
Bioinformatic tools: blast, ksnp, mafft, prank, roary, sift, snpeff
R packages: ape, covr, devtools, lintr, phangorn, phytools, seqinr, Seurat, tidyverse, usethis
Laboratory: CRISPR/Cas9 genome editing, cryostat, ELISA, experimental design, flow cytometry, immune cell isolation (cell sorting, magnetic enrichment), lentiviral transduction, mammalian cell culture, molecular biology (Gibson assembly, transfection, Western blot, qPCR), mouse handling, microbial techniques (anaerobic bacterial culture), plasmid construction, protein co-immunoprecipitation, robotic pipetting system.

INVESTING & MENTORSHIP AT UNIVERSITY OF MICHIGAN

Student Advisor at Wolverine Venture Fund 2018 – Present

- Performed due diligence on Series A/B healthcare & technology companies to inform investment decisions.

Venture Capital Investment Competition 2018 – 2019

- First place team at UM Ross School of Business competition & participant at Regional Competition (UT Austin).

Undergraduate Honors Thesis Research Mentor 2018 – Present

- Weekly supervision of thesis research for undergraduate microbiology student.